

# HB 216 Great Bay Siltation Commission

September 12, 2007

Introduction to the siltation issue



# What we know

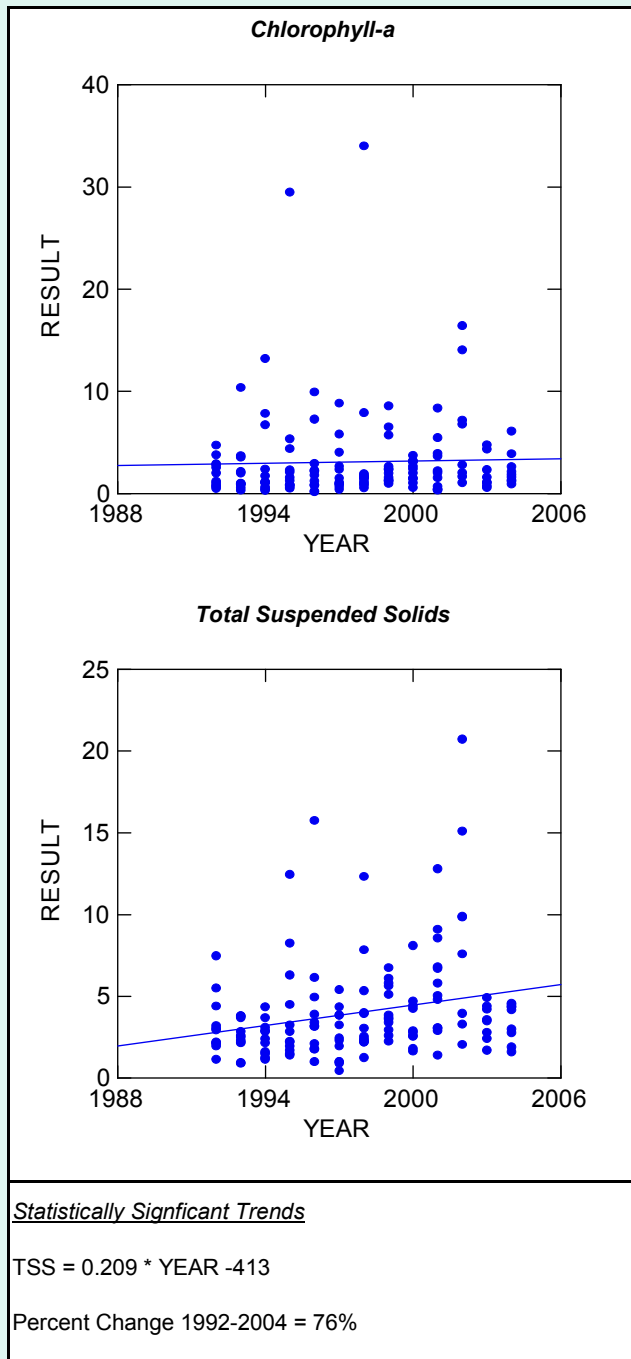
- Channel morphology
- Turbidity
- Eelgrass
- Shellfish
- Dams

# Channel morphology

- Federal channels in Squamscott, Lamprey, Cocheco, Bellamy and Piscataqua. Recent dredge projects on Squamscott and Cocheco. Condition reports are being completed or analyzed.
- Oyster “feasibility study for navigation.” Significant deposition of silt in the upper third of the river.

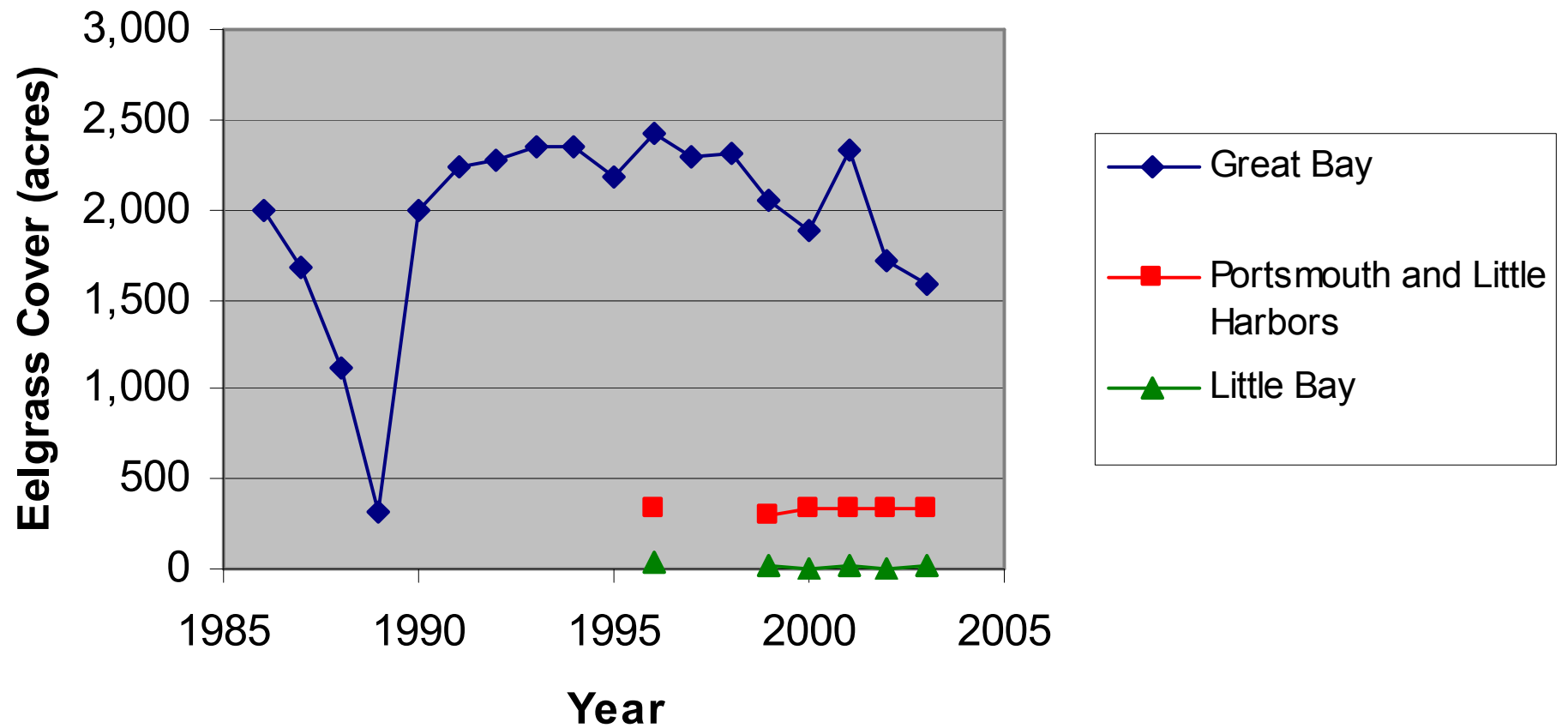
# Turbidity

- Have surface tidal or freshwaters shown a significant change in turbidity over time?
- TSS concentrations increased from an average value of 8.8 mg/L to 15.9 mg/L (an 81% increase) between 1976-1981 and 1999-2004 (NHEP, 2006)



- 1994 - 2004 TSS increased by approx. 20% at three major tributaries over a period when annual river flows went down.
- Sediment yield nearly doubled in that time period for the Oyster River.
- Together, the suspended solids from erosion and organic matter appear to be a significant factor that is limiting for light penetration to eelgrass and other underwater habitats

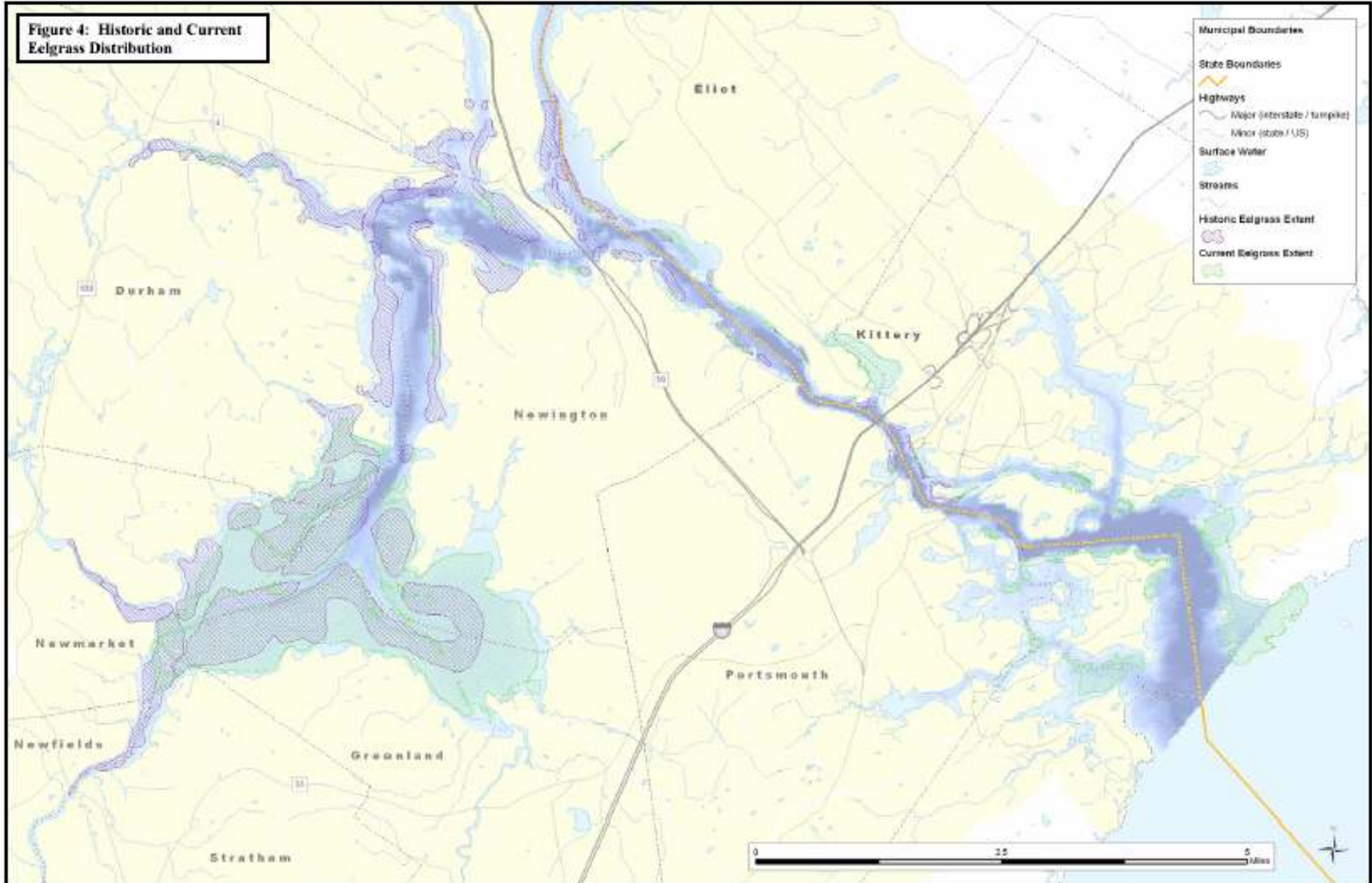
# Eelgrass



# Eelgrass

- New Hampshire Estuaries Project has documented a 17% loss in expanse of eelgrass since 1996.
- Approximately 1,500 acres have been lost since historic times.
- Eelgrass densities also appear to be decreasing.

**Figure 4: Historic and Current  
Eelgrass Distribution**

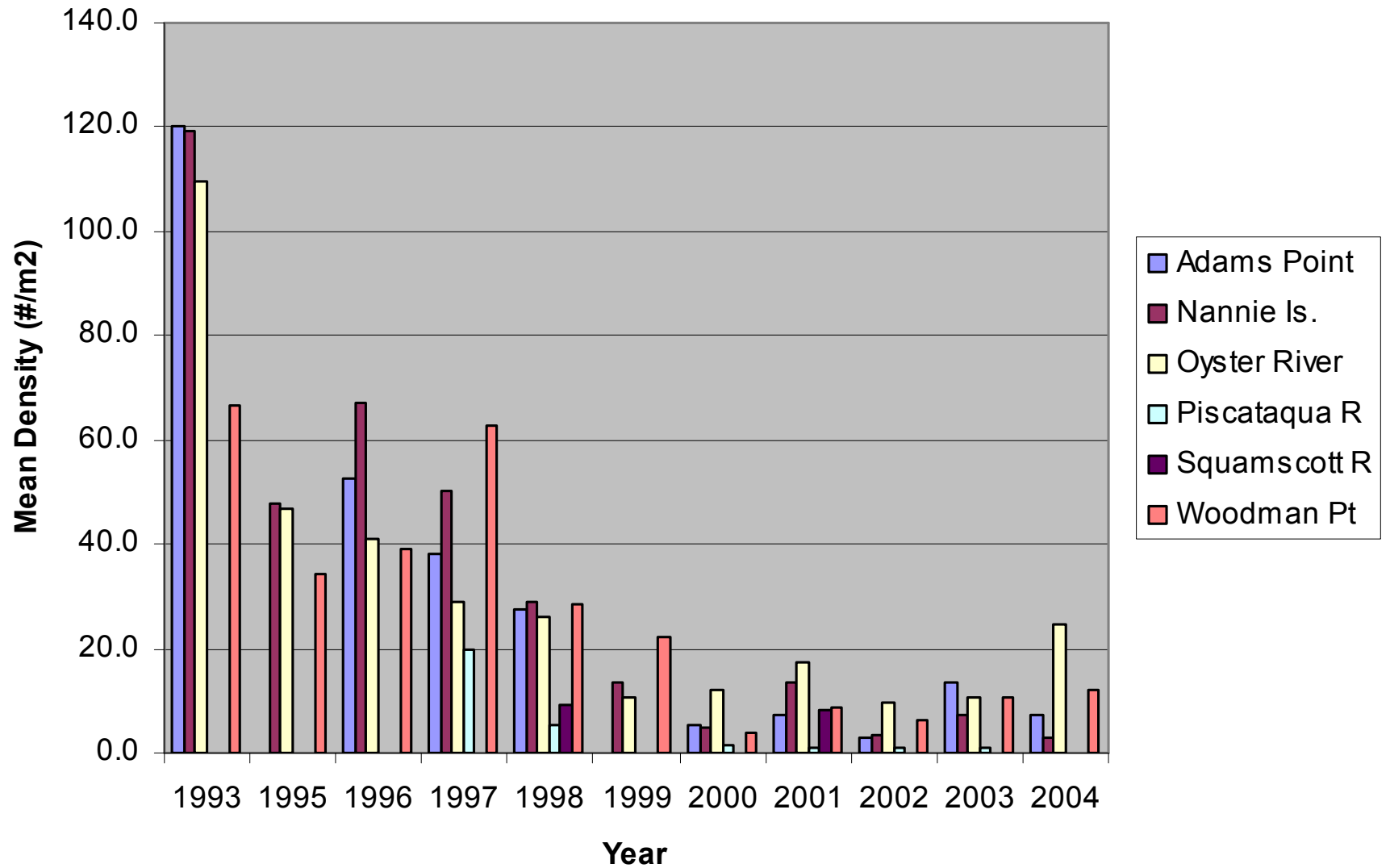




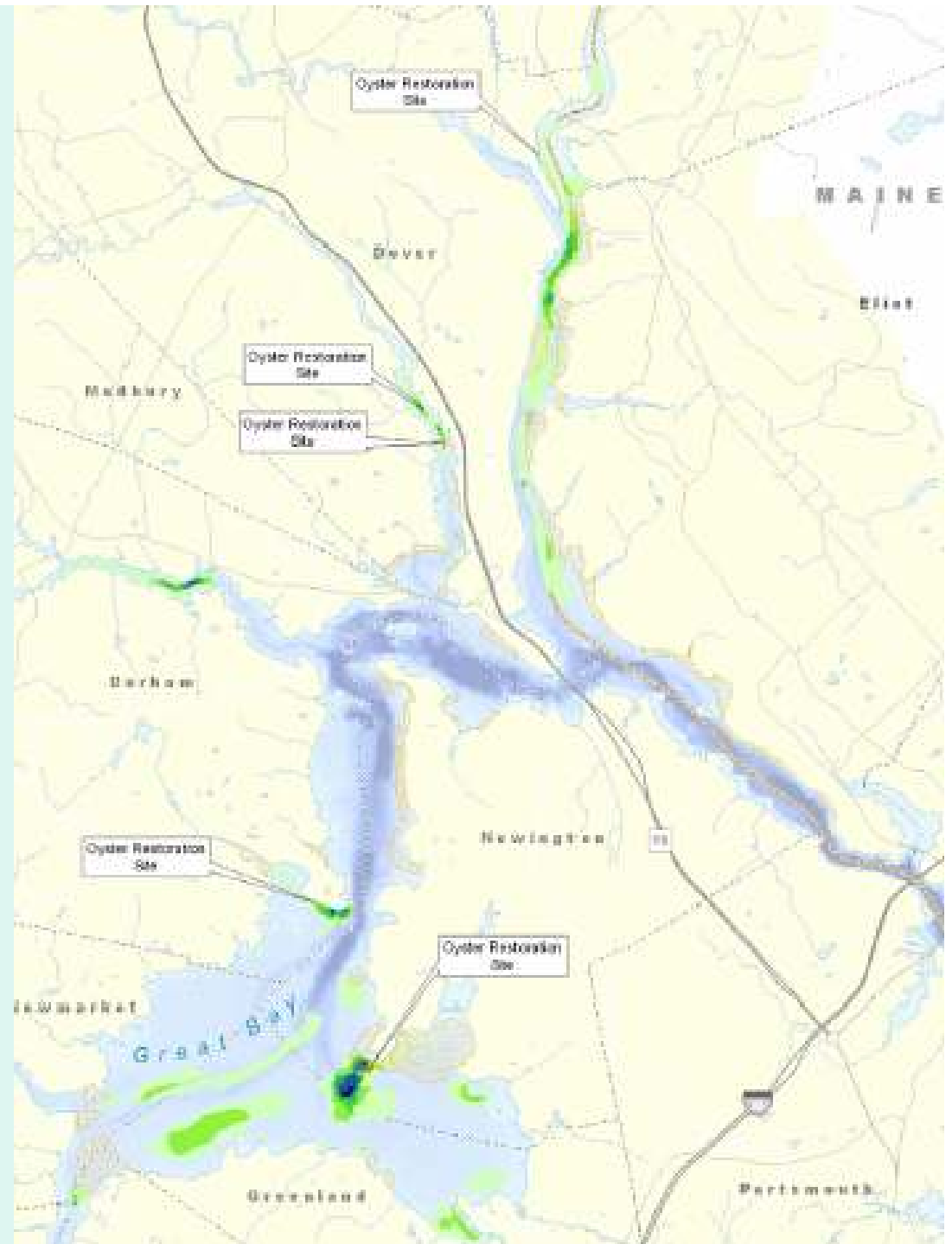
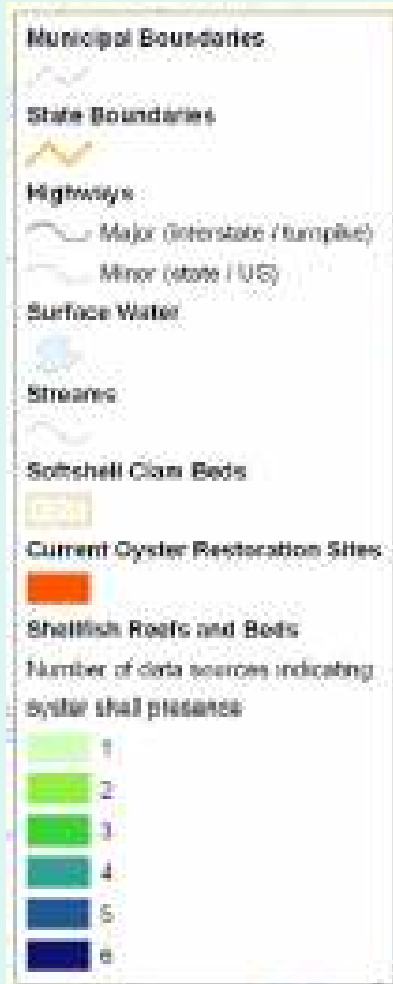
# Shellfish

- UNH project was smothered by sediment from May 2006 floods.
- Shellfish has declined for many years. It is at or near historic lows.
- Historically, oysters could filter all of Great Bay in less than 4 days. Today, it takes about 137 days.

## Harvestable Size Oysters in Great Bay



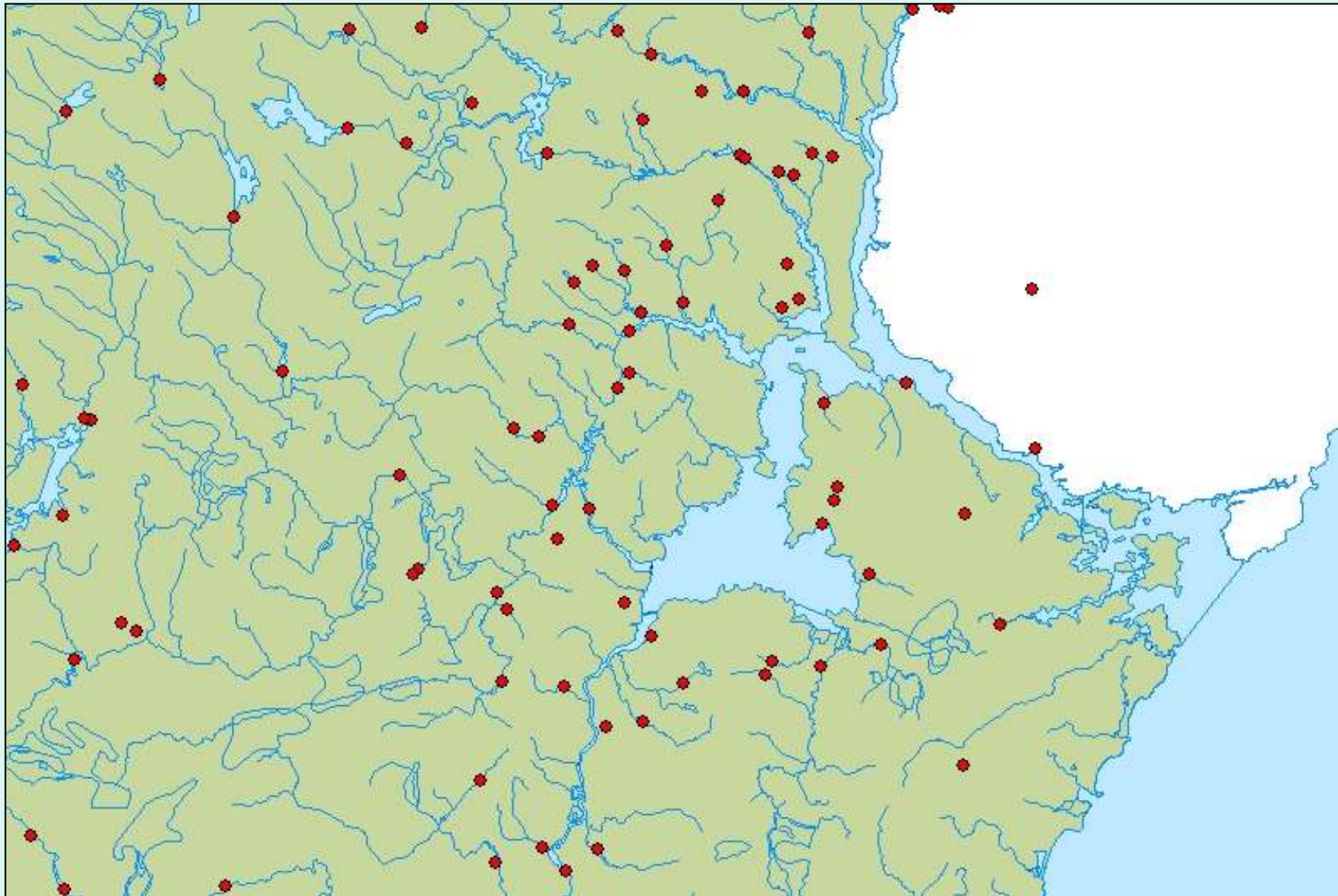
## Potential Shellfish restoration sites



# Dams

- There are about 5,000 dams in New Hampshire!
- Each of the tributary rivers to Great Bay is blocked by one or more dams.
- Most of 1<sup>st</sup> or 2<sup>nd</sup> dams on the tributaries has been rebuilt or greatly modified in the last 70 years.

# Dams around Great Bay



# What we don't know

- Sources of sediments?
- Impacts of waves and wind?
- How much are human uses and ecological health being impacted?
- How much is human induced, how much is “natural”?
- How does sedimentation relate back to climate change?
- What are potential remedies?